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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,848	08/21/2003	Andrew J. Hazelton	PA0525-US/11269.58	1443

7590 11/23/2005

The Law Office of Steven G. Roeder
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EXAMINER	
PRESTON, ERIK D	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/646,848	HAZELTON, ANDREW J.	
	Examiner	Art Unit	
	Erik D. Preston	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 July 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32 and 34-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32 and 34-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *8/21/03; 10/16/03*, 1/5/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *IDS: 1/5/04*.

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I in the reply filed on 7/21/05 is acknowledged. This is not found persuasive because the applicant did not argue any reason for the traversal.

The requirement is still deemed proper and is therefore made FINAL.

Applicant's election without traverse of Group I in the reply filed on 7/21/05 is acknowledged.

In light of the amendment of claims 34-36, they have also been brought into Group I for examination.

Claim Objections

Claim 8 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claims 39-42 are objected to because of the following informalities: All of the above claims are dependent upon claim 33, which was canceled. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

The term "approximately" in claims 2,5,27,38 & 50 is a relative term, which renders the claim indefinite. The term "approximately" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5,7-11,20,34-38 & 43-50 are rejected under 35 U.S.C. 102(b) as being anticipated by Dombrovski et al. (US 6313556).

With respect to claims 1,6,8 & 37, Dombrovski teaches a mover (as seen in Fig. 1) having a magnet component (Fig. 1, #14) and a conductor (Fig. 1, #52), said mover defines a first passageway (Fig. 1, #76 & 78) and a second passageway (Fig. 1, #44) including an inlet, the first passageway encircling a portion of the second passageway (as seen in Fig. 1), and a circulation system (Fig. 1, #16 & 20) comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the second fluid is approximately boiling at the inlet (the cryogenic fluid used in this system would inherently be boiling at least during the initial operation of the device).

With respect to claim 2, Dombrovski teaches the mover of claim 1, wherein the mover includes an outer surface and fluid source controls the temperature and flow of the first fluid so that the temperature of the outer surface is approximately equal to an ambient temperature.

With respect to claims 3,4,9 & 34-36, Dombrovski teaches the mover of claims 1 & 37, wherein the second fluid is boiling.

With respect to claims 5,38 & 50, Dombrovski teaches the mover of claims 1,37 & 49, wherein the mover is positioned in a room that is at room temperature, and wherein the temperature of the first fluid at the first inlet is approximately equal to the room temperature.

With respect to claims 10 & 11, Dombrovski teaches the mover of claim 1, wherein the circulation system creates a partial vacuum in the second passageway (which it inherently does as the coolant changes temperature).

With respect to claim 43 & 20, Dombrovski teaches a method for controlling the temperature of a mover including a magnet component (Fig. 1, #14) and a conductor (Fig. 1, #52), said mover that defines a first passageway (Fig. 1, #44) in the mover and a sealed second passageway (Fig. 1, #76 & 78) in the mover, and circulating a first fluid from a fluid source through the first passageway.

With respect to claim 44, Dombrovski teaches the method of claim 43 further comprising the step of transferring heat from a conductor array of the conductor component with a heat transfer (which it inherently does).

With respect to claim 45, Dombrovski teaches the method of claim 44, including the step of providing a third passageway (Fig. 1, #46) in the mover and the heat transferer transfers heat from the conductor components to the third passageway.

With respect to claim 46, Dombrovski teaches the method of claim 45, further comprising the step of circulating a third fluid (the warm coolant) through the third passageway.

With respect to claim 47, Dombrovski teaches the method of claim 44, wherein the heat transferer includes a heat pipe (the apparatus of Dombrovski will act as a heat pipe).

With respect to claim 48, Dombrovski teaches the method of claim 44, wherein the heat transferer includes a thermally conductive structure (all matter is thermally conductive).

With respect to claim 49, Dombrovski teaches a method for making a mover combination, the method comprising the steps of: Providing a mover having a magnet component and a conductor component and controlling the temperature of the mover with the method of claim 43.

Claims 7 & 20-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Weghaupt (US 4155019).

With respect to claim 7, Weghaupt teaches a mover (as seen in Fig. 1) having a magnet component (which inherently exists in all dynamoelectric rotary machines of the type such as is taught by Weghaupt) and a conductor (Fig. 1, #3), said mover that defines a first passageway (Fig. 1, #28) and a second passageway (Fig. 1, #12)

including an inlet, the first passageway encircling a portion of the second passageway (as seen in Fig. 1), and a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, wherein the second fluid is approximately boiling at the inlet (the cryogenic fluid used in this system would inherently be boiling at least during the initial operation of the device), wherein the passageways are positioned in the conductor component.

With respect to claim 20, Weghaupt teaches a mover including a magnet component (which inherently exists in all dynamoelectric rotary machines of the type such as is taught by Weghaupt), and a conductor component (Fig. 1, #3), the mover also including a first passageway (Fig. 2, #12) and a sealed second passageway (Fig. 2, #31 & 32); and a fluid source that circulated a first fluid through the first passageway.

With respect to claim 21, Weghaupt teaches the mover of claim 20, wherein the second passageway is filled with a second fluid that is a gas (liquid helium).

With respect to claim 22, Weghaupt teaches the mover of claim 21, further comprising a heat transferer that is in direct thermal communication with the conductor component (which inherently exists) and transfers heat from the conductor component.

With respect to claim 23, Weghaupt teaches the mover of claim 22, wherein the mover includes a third passageway (Fig. 2, #15) and the heat transferer transfers heat from the conductor component to the third passageway.

With respect to claim 24, Weghaupt teaches the mover of claim 23, wherein the fluid source circulates a third fluid through the third passageway.

With respect to claim 25, Weghaupt teaches the mover of claim 23, wherein the heat transfer includes a heat pipe (the apparatus of Weghaupt will act as a heat pipe).

With respect to claim 26, Weghaupt teaches the mover of claim 23, wherein the heat transferer includes a thermally conductive structure.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 12-14 are rejected under 35 U.S.C. 103(a) as being obvious over Binnard (US 6956308).

The applied reference has a common assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer

in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

With respect to claim 12, Binnard teaches a mover (as seen in Fig. 3B) that defines a first passageway (Fig. 3D, #364) and a second passageway (Fig. 3D, #366) including an inlet, the first passageway encircling a portion of the second passageway, and a circulation system comprising a fluid source that directs a first fluid to the first passageway and a second fluid to the second passageway, but it does not teach that the second fluid is approximately boiling at the inlet. However, liquid helium, liquid nitrogen, and liquid neon were well known at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to cool the mover of Binnard with liquid helium, liquid nitrogen, or liquid neon since they were all very well know to be effective coolants.

With respect to claim 13, Binnard teaches the mover of claim 1, wherein the mover is a linear motor.

With respect to claim 14, Binnard teaches the mover of claim 1, wherein the mover is a voice coil motor.

Claims 15-19 & 51-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dombrovski et al. (US 6313556). Dombrovski teaches the mover of claims 1 & 43, but it does not specifically teach said mover being used in an isolation system, stage assembly, or an exposure apparatus for producing semiconductor wafers. However, isolation systems, stage assemblies, and exposure apparatuses for producing

semiconductor wafers using rotary motors were well known at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the mover of Dombrovski in isolation systems, stage assemblies, and exposure apparatuses for producing semiconductor wafers because superconducting motors are more energy efficient than conventional motors.

Claims 28-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weghaupt (US 4155019). Weghaupt teaches the mover of claim 20, but it does not specifically teach said mover being used in an isolation system, stage assembly, or an exposure apparatus for producing semiconductor wafers. However, isolation systems, stage assemblies, and exposure apparatuses for producing semiconductor wafers using rotary motors were well known at the time of the invention. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the mover of Dombrovski in isolation systems, stage assemblies, and exposure apparatuses for producing semiconductor wafers because superconducting motors are more energy efficient than conventional motors.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 3845639, US 4295068, US 4386289, US 4389585, US 4565601, US 5705029, US 6351045, US 6536218 & US 6812601.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is 571-272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

11/15/2005

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